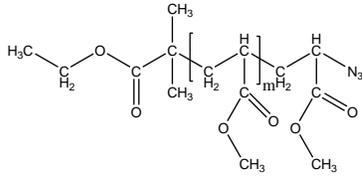


**Sample Name:**  $\alpha$ -azido end functionalized Poly (methyl acrylate)

**Sample #:** P41615-MA-N3

**Structure:**



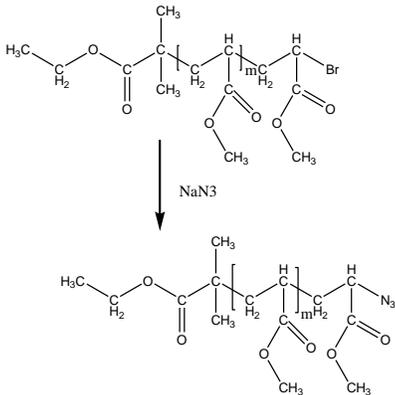
**Composition:**

$M_n \times 10^3$	PDI
4.0	1.05

**Synthesis Procedure:**

The Br end functionalized PMA was prepared by ATRP polymerization process followed by reaction Br end PMA with  $NaN_3$  in DMF.

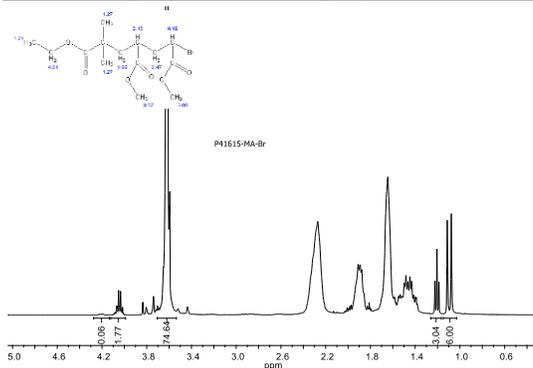
The following reaction scheme shows how the product was prepared:



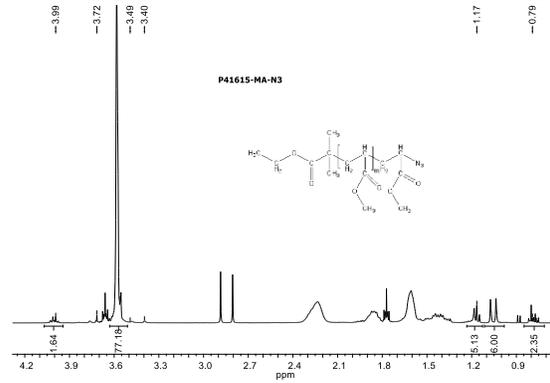
**Characterization:**

The product was characterized by size exclusion chromatography (SEC),  $^1H$  NMR and FTIR.

**$^1H$  NMR spectrum of the polymer: PMA-Br**

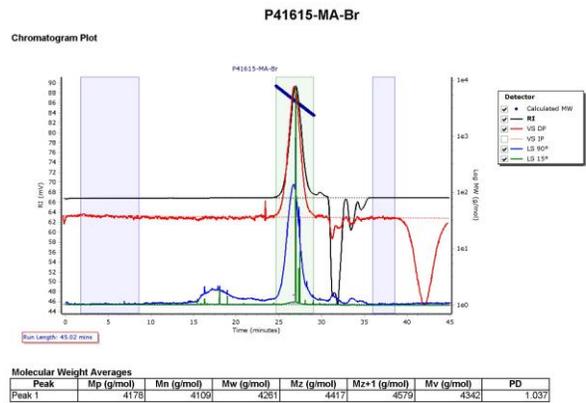


**$^1H$  NMR spectrum of the polymer: PMA-N3**



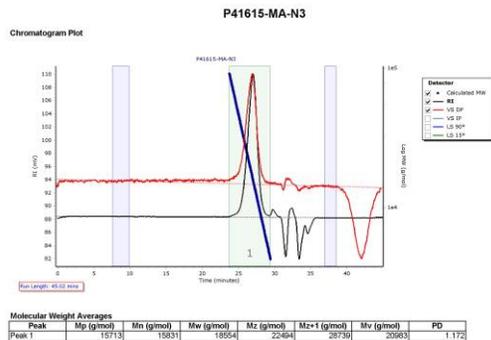
**SEC elugram of the PMA-Br:**

Agilent GPC/SEC Software

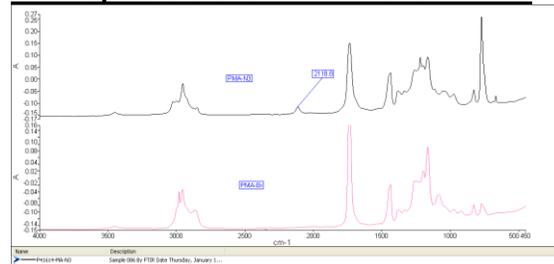


**After converting Br to N3 end group the elution count of the obtain polymer in their SEC changes to lower elution count:**

Agilent GPC/SEC Software



**FTIR spectra of the PMA-Br and PMA-N3**



**FTIR Spectra:**

Presence of Azide end groups were observed by FTIR (Cm-1): 2118(s) and compare with Carbonyl 1735 (s).

**Calibration for FTIR:**

Methyl 2- azidopropionate and Bromo end functionalized poly methyl acrylate were mixed in several ration in CHCl3 and FTIR were made in CHCl3 in a solution cell. The integration of the peak corresponding to the azide and carbonyl groups were compared. It gives you an approximate functionalization. The details are reported in our publication: Xing Fu. Zhong, S. K.Varshney, and A. Eisenberg

"Critical Micellization Length for Polystyrene-b-Na-Acrylate Block Ionomers" CA Vol 117, 26, 252280 Macromolecules 1992, 25, 7160-7167.